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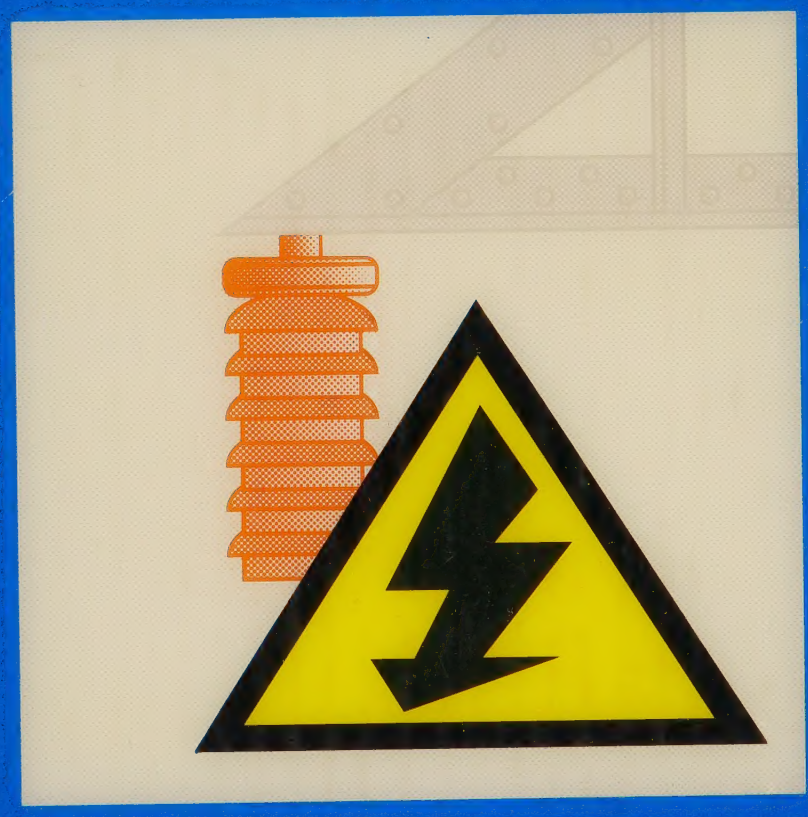
Health Technical Memorandum 2021

Health Technical Memorandum 2021

Management policy

Electrical safety code for high voltage systems (Escode – HV)



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About this publication

Health Technical Memoranda (HTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of health care.

They are applicable to new and existing sites, and are for use at various stages during the inception, design, construction, refurbishment and maintenance of a building.

Health Technical Memorandum 2021

HTM 2021 defines the UK Health Departments' policy and operational guidance on electrical safety requirements for high voltage systems in health care and personal social services premises.

Guidance is intended to assist in meeting the requirements of the Electricity at Work Regulations 1989 which detail the precautions to be taken against risk of death or personal injury from electricity in work activities.

HTM 2021 will also be of interest and practical help to those involved in the design, purchase and construction of electrical systems and equipment.

It is published as two separate volumes each addressing a specialist discipline:

This volume – **Management policy** – outlines the overall responsibility of managers of health care and personal social services premises, and details their legal and mandatory obligations in setting up and operating reliable high voltage electrical safety procedures. Included in this volume are model letters for appointment of/acceptance by an authorising engineer.

Operational management – provides information and statutory guidance for those responsible for meeting the requirements of the Electricity at Work Regulations 1989. Included in this volume are model documents, including appointment procedures; letters of appointment/acceptance and certificates of appointment of an "authorising engineer", "authorised person" and "competent person"; electrical safety rules; safety programme; permit-to-work/sanction-for-test/ limitation of access forms; logbook and a switchgear and transformer schedule.

The contents of this Health Technical Memorandum in terms of management

policy and operational policy are endorsed by:

- The Welsh Office for the NHS in Wales;
- The Health and Personal Social Services Management Executive in Northern Ireland;
- The National Health Service in Scotland Management Executive.

References to legislation appearing in the main text of this guidance apply in England and Wales. Where references differ for Scotland and/or Northern Ireland these are given as marginal notes.

Where appropriate, marginal notes are also used to amplify the text.

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1.0 Scope

Nursing Homes and Agencies Act (Northern Ireland) 1971
Nursing Homes Regulations (Northern Ireland) 1974
Registered Establishments (Scotland) Act 1987

1.1 Guidance in this document (Health Technical Memorandum 2021, Electrical safety code for high voltage systems (Escode – HV)) applies to all health care and personal social services premises which have high voltage electrical systems. It applies to new and existing sites, including homes which are covered by the Registered Homes Act 1984.

1.2 The use of electricity in these premises makes it essential that all electrical systems are managed without giving rise to **danger**. High voltage electrical safety is an integral part of the safety procedures which must be introduced.

1.3 Inadequate control and/or improper use of electricity is a danger to life and property. Owners, occupiers, general managers/chief executives and those responsible for electrical services as "duty holders" are accountable for ensuring control; they are also responsible for the safe management, design, installation, operation and maintenance of the electrical systems.

Electricity at Work Regulations (Northern Ireland) 1991 (SR 191/13) (Enforcement date 6 January 1992)

1.4 This guidance is intended to assist duty holders to meet the requirements of the Electricity at Work Regulations 1989 ("the Regulations"), which came into force on 1 April 1990 and which impose duties on employers, owners or occupiers of premises, and general managers/chief executives in respect of:

- systems;
- electrical equipment and conductors;
- work activities on or near electrical equipment.

The Regulations impose similar duties on duty holders.

The Regulations also detail the precautions to be taken against risk of death or personal **injury** from electricity in work activities.

Health and Safety at Work (Northern Ireland) Order 1978 (SI 1979/1039 NI9)

1.5 The Regulations are made under the Health and Safety at Work etc Act 1974 (HSW Act 1974). This imposes duties principally on employers, the self-employed and employees – including certain classes of trainees.

1.6 This guidance is not an authoritative interpretation of the Regulations or other laws. Such interpretation can only be made by the courts.

Other guidance

1.7 Practical design guidance for electrical systems is contained in HTM 2007 – 'Electrical services – supply and distribution' (in preparation) and HTM 2011 – 'Emergency electrical services'. Guidance on low voltage electrical safety is given in HTM 2020 – 'Electrical safety code for low voltage systems (Escode – LV)'.

2.0 Management responsibilities

Statutory requirements

2.1 It is the responsibility of the owners and occupiers of premises, general managers and chief executives to ensure that their premises comply with all statutes.

2.2 Employers have a general duty, under the Health and Safety at Work etc Act 1974 (HSW Act 1974), so far as is reasonably practicable, to ensure the health, safety and welfare of their employees, residents and visitors to their premises. These duties are legally enforceable and the Health and Safety Executive have successfully prosecuted occupiers of premises under this statute. It is incumbent upon both owners and occupiers of premises to ensure that there is a management regime for the proper design, installation and operational management of plant, equipment and systems.

Electricity at Work Regulations

2.3 The principal statutory requirement for electrical safety in the workplace is the Electricity at Work Regulations 1989 (SI No 1989/635). The Regulations came into force on 1 April 1990. The purpose of the Regulations is to require precautions to be taken against the risk of death or personal **injury** from electricity in work activities.

2.4 The Regulations are made under the HSW Act 1974 which imposes duties principally on employers, the self-employed and on employees – including certain classes of trainees. The Regulations impose duties on persons (duty holders) in respect of systems, electrical equipment and conductors and in respect of work activities on or near electrical equipment. These duties are in addition to the others imposed by the HSW Act 1974. The Regulations apply to all work situations covered by the HSW Act 1974 and they apply to equipment of any age. Therefore the guidance is equally applicable to new and existing premises. There are 33 Regulations in all, though Regulations 17 to 28 apply only to mines.

The Electricity Supply Regulations 1988

Electricity Supply Regulations (Northern Ireland), SI 1991/536 NI

2.5 These impose requirements regarding the installation and use of electric lines and apparatus of suppliers of electricity including provisions for connections with earth. These Regulations are administered by the Engineering Inspectorate of the Electricity Division of the Department of Energy (now part of the Department of Trade and Industry) and may impose requirements which are in addition to those of the Electricity at Work Regulations 1989.

Functional guidance

2.6 The Department of Health, Institution of Electrical Engineers and the Health and Safety Executive produce the following guidance notes and other publications which are of interest:

a. Department of Health:

- HTM 2007 – 'Electrical services – Supply and distribution' (in preparation);
- HTM 2011 – 'Emergency electrical services';

- HTM 2020 – 'Electrical safety code for low voltage systems (Escode – LV)';

b. Institution of Electrical Engineers (IEE):

- 'Regulations for Electrical Installations' BS7671: 1992;

c. Health and Safety Executive:

- PM 32, PM 53, GS 27, GS 33, GS 34, GS 37, GS 38, GS 44, HS(G) 13.

2.7 These give detailed advice on design of certain equipment, safe working practices, maintenance and repair of equipment, installation practice for particular environments, etc.

2.8 There are many national and international codes of practice written by standards-making authorities, trade associations and other bodies, setting out standards and procedures applicable to particular industries, processes or hazards. These may provide useful detailed expansion of the guidance given in Escode – HV but it must be borne in mind how, and by whom, these codes have been drawn up.

2.9 Anyone who manages, designs, purchases, installs, constructs, commissions, operates or maintains high voltage electrical systems and equipment who needs advice should refer to appropriate guidance. This may be found in national, international and harmonised or industry standards and codes of practice or Health and Safety Executive guidance; or they should seek expert advice.

Operational management

Managerial authority and responsibility

2.10 Management (see paragraph 2.22) should appoint in writing a "designated person" and an "authorising engineer" (see paragraphs 2.24 and 2.25).

2.11 They should also clearly define:

a. an electrical safety policy for the operation and servicing of their high voltage electrical system(s) and equipment;

b. a means by which the policy can be managed, implemented, monitored and reviewed.

2.12 All personnel must be made fully aware in writing of their safety responsibilities, as required by statute, and they must be given the necessary information and training to properly understand and carry them out. This also extends to organisations, or individuals to whom work has been contracted.

2.13 Management should produce guidance for electrical safe working practice and procedures. This should clearly indicate where appropriate general and technical advice can be obtained, and whether this is available from within the organisation or from an outside source.

Reporting of injuries or dangerous occurrences

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1986, SR 1986/247

2.14 The reporting of injuries or dangerous occurrences resulting from electrical accidents at work is covered by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985 (RIDDOR). Management shall comply with these requirements.

2.15 Unusual occurrences which do not fall within the RIDDOR requirements should be reported as set out in HTM 2021, 'Electrical safety code for high voltage systems, "Operational management"'.

Monitoring and record keeping

2.16 It is a requirement of the Electricity at Work Regulations 1989 that the design, installation, testing and commissioning, operation and maintenance of the high voltage electrical system and equipment are fully integrated to prevent **danger**.

2.17 Every electrical installation should be inspected and tested to verify that the requirements of the Electricity at Work Regulations 1989 are met, before being put into service. Inspection and testing may take place during construction and/or at completion.

2.18 For new installations, formal completion and inspection certificates should be provided at handover and form part of the historical record and documentation.

2.19 Precautions shall be taken to ensure high standards of electrical safety and these must be reflected in management's strategies for appointing key personnel, training, operational management, design, adopting safe working procedures and practices, etc, together with the establishment of satisfactory monitoring to ensure the electrical safety policies are being effectively implemented.

2.20 Records of planned, routine and emergency maintenance and untoward occurrences, etc, should be formally kept. Without effective monitoring and records, duty holders cannot demonstrate that they have complied with the requirements for installation and maintenance of electrical systems and equipment.

2.21 In the event of proceedings contravening the Electricity at Work Regulations 1989, these records may be the duty holder's main defence in proving that they took all reasonable and procedural steps, and exercised due diligence to avoid committing an offence.

Designated staff functions

2.22 Management – the owner, occupier, employer, general manager, chief executive or other person who is accountable for the premises and who is responsible for issuing or implementing a general policy statement under the HSW Act 1974.

2.23 Employer – any person or body who:

a. employs one or more individuals under a contract of employment or apprenticeship;

b. provides training under the schemes to which the Health and Safety (Training for Employment) Regulations 1988 (Statutory Instrument No 1988/1222) apply.

Northern Ireland: Health and Safety (Training for Employment) Regulations 1990, Statutory Instrument No 1990/1380

2.24 Designated person – an individual who has overall authority and responsibility for the high voltage electricity system within the premises and who has a duty under the HSW Act 1974 to prepare and issue a general policy statement on health and safety at work, including the organisation and arrangements for carrying out that policy. This person should not be the authorising engineer.

2.25 Authorising engineer (High Voltage) – a chartered electrical engineer with appropriate experience, possessing the necessary degree of independence from local management, who is appointed in writing by management to implement, administer and monitor the safety arrangements for the high voltage electrical supply and distribution systems of that organisation to ensure compliance with the Electricity at Work Regulations 1989 and to assess the suitability and appointment of candidates in writing to be "authorised persons".

2.26 Authorised person – an individual possessing adequate technical knowledge, and having received appropriate training, appointed in writing by the authorising engineer to be responsible for the practical implementation and operation of management's safety policy and procedures on defined electrical systems.

2.27 Competent person – a person recognised by the authorised person as having sufficient technical knowledge and experience to enable them to prevent **danger** and who may be nominated to receive and clear specified safety documents.

2.28 Responsible person – an individual who has been given permission in writing by an authorised person, normally but not necessarily, for a particular non-electrical task where it is considered that the inherent risk of **danger** and/or **injury** from electrical equipment requires extra vigilance. Permission is to be by the issue and acceptance of a Limitation-of-access, safety document.

2.29 Duty holder – a person on whom the Electricity at Work Regulations 1989 impose a duty in connection with safety.

Roles and duties of an authorising engineer

2.30 It may not be the most efficient utilisation of manpower to have authorising engineers associated with a specific management geographical area. It is recommended therefore that one authorising engineer is appointed for each major geographical area.

Role of the authorising engineer

2.31 Within the geographical area for which the authorising engineer has been appointed, they will be responsible for implementing, administering and monitoring the application of this guidance. The authorising engineer's roles include those described below.

2.32 Appoint in writing sufficient authorised persons to provide the necessary cover for all systems and installations for which management has responsibility.

2.33 Define the exact extent of the systems and installations for which each authorised person is responsible.

2.34 If necessary, suspend or cancel the appointment of an authorised person and withdraw the certificate (see paragraph 2.37).

2.35 Maintain a register of all appointed authorised persons.

2.36 Ensure that candidates for appointment as authorised persons:

a. meet the qualification requirements (see HTM 2021, Electrical safety code for high voltage systems, "Operational management");

b. meet the training and familiarisation requirements (see HTM 2021, Electrical safety code for high voltage systems, "Operational management");

c. can demonstrate adequate knowledge of each system, installation and type of equipment for which authorisation is sought;

d. have satisfied the authorising engineer as to their competence and ability.

2.37 Issue to each authorised person, on appointment, a certificate valid for a period not exceeding three years in the form shown in HTM 2021, Electrical safety code for high voltage systems, "Operational management".

2.38 Report to management any deficiency in the number of suitably trained and experienced authorised persons where this significantly impairs management's ability to provide a safe and efficient service.

2.39 Review each authorised person's operational experience at intervals of not more than three years by examining the relevant operating records, and recommend refresher training as necessary.

Duties of an authorising engineer

2.40 On receipt of an "operational restriction" related to high voltage systems and/or equipment, ensure that all authorised persons are made aware of it, and receive copies.

2.41 Notify the Department of any known operational restriction issued by a regional electricity company, equipment manufacturer, etc, or which arises locally.

2.42 Initiate and co-ordinate the investigations of reported injuries and dangerous occurrences involving electrical systems and installations within the authorising engineer's sphere of responsibility.

2.43 Sanction any interpretation of this guidance, any local house rules, and any deviation, that may be necessary for their application.

2.44 Ensure that any amendments to this guidance are brought formally to the attention of, and are understood by, all appropriate personnel.

Definitions

2.45 Circuit conductor – any conductor in a system which is intended to carry electrical current in normal conditions, but does not include a conductor provided solely to perform a protective function by connection to earth or other reference point.

2.46 Conductor – a conductor of electrical energy.

2.47 Danger – a risk of injury.

2.48 Dangerous condition – a condition that is likely to lead to a dangerous occurrence.

2.49 Dangerous occurrence – an incident which involves a source of electrical energy and which gives rise to danger to any person.

2.50 Department – an abbreviation of the generic term "UK Health Departments" (Department of Health, The Scottish Office, The Welsh Office and The Department of Health and Social Services Northern Ireland).

2.51 Electrical equipment – includes anything used, intended to be used or installed for use to generate, provide, transmit, transform, conduct, distribute, control, measure or use electrical energy.

2.52 Equipment – abbreviation of electrical equipment.

2.53 High Voltage (HV) – the existence of a potential difference (rms value for ac) normally exceeding 1000 volts ac between circuit conductors or 600 volts between circuit conductors and earth.

2.54 Injury – death or personal injury from electric shock, electric burn, electrical explosion or arcing, or from fire or explosion initiated by electrical energy.

2.55 System – a system in which all the electrical equipment is, or may be, electrically connected to a common source of electrical energy, including such source and such equipment.

3.0 Management action

3.1 Management and its nominated staff as duty holders are responsible for the safety of high voltage (HV) electrical systems on their premises. The Electricity at Work Regulations 1989 impose duties on employers to comply with these insofar as they relate to matters which are within their control. These duties are in addition to the ones imposed by the Health and Safety at Work etc Act 1974. To satisfy these requirements, management should ensure that there is:

a. a clearly defined electrical safety policy and programme for the operation and servicing of their high voltage electrical system(s) and equipment;

b. means by which the policy and programme can be managed, implemented, monitored and reviewed.

3.2 Management should formally nominate in writing a designated person (see paragraph 2.24) with responsibility for the HV electrical safety policy.

The electrical safety policy should demonstrate the commitment of management to self-regulation and reflect the uniqueness and special needs of the managed premises for which it is written, by:

a. recognising the importance of the subject;

b. ensuring that responsibilities both legal and managerial are clearly defined and understood throughout the organisation;

c. establishing the arrangements for preventing **danger** or **injury** to persons from electrical causes in connection with work activities and ensuring that high standards of electrical safety are reflected in the management, design, installation, operation and maintenance of systems and equipment in respect of premises owned or occupied by them;

d. monitoring and reviewing at regular intervals the effectiveness of the policy and progress concerning its implementation;

e. ensuring that clear and concise written records are kept of all activities involved in the implementation of the policy.

3.3 Management is also required to formally appoint in writing (see Appendix 1) an authorising engineer with the responsibility for implementing, administering and monitoring the application of the requirements of Electrical safety code for high voltage systems (Escode – HV). The person appointed to fill this position must be a chartered electrical engineer and have a commitment to the role and the responsibilities which it involves. Management responsible for the appointment also has a duty to monitor the effectiveness of the authorising engineer in fulfilling this role. This monitoring requirement is particularly important if the authorising engineer appointed is either self-employed or employed by an organisation outside the management structure.

3.4 It may not be the most efficient utilisation of manpower to have authorising engineers associated with a specific management geographical area. It is recommended therefore that one authorising engineer is appointed for each major geographical area.

3.5 In addition to ensuring that all statutory requirements relating to electrical safety are observed, management shall have:

a. a clearly defined electrical safety policy;

b. a structure, appropriate to the complexity of the work, to carry out the policy, including an outline description of individual responsibilities;

c. procedures for ensuring the effective administration of the policy;

d. a system of monitoring to ensure that the policy is being effectively pursued within the managed premises;

e. a programme of training to ensure the awareness of all staff on the use of electricity and general electrical safety;

f. appropriate training for relevant professional and technical staff;

g. a procedure for dealing with any emergencies that may arise.

Appendix 1

Model letters

Letters of appointment should be on management headed paper. Management should check that proposed appointees are suitably qualified (see paragraph 2.25).

Model letter for appointing an authorising engineer

Dear [(1)]

Appointment as authorising engineer (High Voltage)

You are hereby appointed as the authorising engineer for
[(2)] to undertake the duties set out
[(3)] [until further notice (4)].

Please confirm your acceptance of the appointment by signing and returning to me a copy of the attached letter.

Signed _____
(on behalf of management)

Notes

(1) Insert name of person being offered the appointment.

(2) Insert the title of the (management).

(3) Either include a complete reference to the duties as detailed in "Designated staff functions" (paragraph 2.25), or provide a separate list of the duties.

(4) A fixed period may be inserted. However, since management has a duty to monitor and review the performance of the authorising engineer, this terminology provides the facility to cancel the appointment at any stage.

Model letter for acceptance of appointment as an authorising engineer

Dear [(1)]

Appointment as authorising engineer (High Voltage)

I acknowledge receipt of the appointment letter dated [(date)] as my authority to act as authorising engineer for [(2)] and will to the best of my ability carry out the authorising engineer's duties as set out [(3)].

Signed _____

Notes

(1) Insert name or title of person to whom the letter is to be returned.

(2) Insert title of the management.

(3) Same wording as item (3) on the model letter of appointment.

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28 to 53 –

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58 Internal doorsets, 1989.
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68 Ducts and panels for sanitary assemblies (in preparation)
69 Protection (in preparation)
70 Fixings (in preparation)
71 to 80 –

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81 Firecode: fire precautions in new hospitals, 1987.
81 Supp 1 (in preparation)
82 Firecode: alarm and detection systems, 1989.
83 Fire safety in health care premises: general fire precautions*†
84 Fire precautions in new residential care premises (in preparation)
85 [Revision to Home Office draft guidance in preparation]
86 Firecode: assessing fire risks in existing hospital wards, 1987.
87 Firecode: textiles and furniture, 1989.
88 Fire safety in health care premises: guide to fire precautions in NHS housing in the community for mentally handicapped/ill people, 1986.

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